0.1 Introduction

0.1.1 What is Qubit?

Qubit is the fundamental unit of quantum information. Compaired to the classical bit, qubit requires complex vector space where qubits becomes complex vector and quantum gates becomes matrices.

$$\alpha|0> + \beta|k> \tag{1}$$

0.1.2 How is qubit different from classical bit?

Qubit is the fundamental unit of quantum information. Compaired to the classical bit, qubit requires complex vector space where qubits becomes complex vector and quantum gates becomes matrices.

$$\begin{matrix} a & b \\ c & d \end{matrix} \tag{2}$$

0.1.3 What is superposition of qubits?

0.1.4 How is two qubits system represented?

0.1.5 What are the postulates of quantum mechanics?

0.1.6 What is bloch sphere?

0.1.7 What is coherence?

0.1.8 What is decoherence?

0.1.9 what are pure and mixed states?

0.1.10 What is entanglement?

0.1.11 What is superdense coding?

0.1.12 What is teleportation?

0.1.13 What is bell state?

0.1.14 What is Heisenberg Uncertainty?

0.1.15 What is measurement?

0.1.16 What is quantum parallelism?

0.1.17 It is possible to construct quantum parallel of classical gates?

0.1.18 What is the difference between separable and entangled state?

0.1.19 What happens to the quantum state after a measurement?

0.1.20 What is local(relative) and global phase of qubit?

0.1.21 What is Born rule?(Qiskit1.1)

0.1.22 What is conservation of certainty?(Qiskit1.4)

0.1.23 What is quantum simulation?

0.2 Algebra

0.3 Quantum Gates

0.4 Quantum Circuits